

Student

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25BEC10075

Project Goal Overview

Prediction

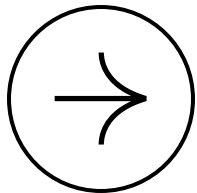
Predicting student final exam scores accurately.

Estimation

Helping students estimate their performance effectively.

Improvement

Assisting in planning study improvements strategically.



Problem Statement

Project Goal

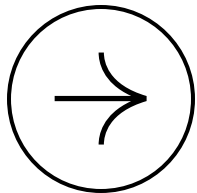
Predicting student scores through data analysis.

Input Features

Utilizing study hours and previous performance metrics.

Model Development

Building a machine learning model for accurate predictions.



Dataset Overview

Dataset Composition

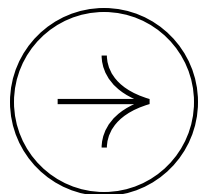
Synthetic data includes relevant student features.

Feature Importance

Key factors influence final exam predictions.

Data Size

Dataset contains numerous entries for reliability.



Tools and Technologies Used

Python

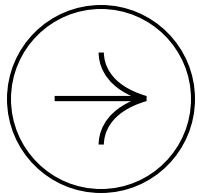
Python is a versatile programming language widely used in data science.

pandas

pandas is a powerful library for data manipulation and analysis.

scikit-learn

scikit-learn provides robust tools for machine learning model development.



Methodology: Dataset Preparation

Data Collection

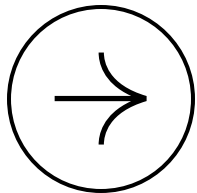
Synthetic student data was gathered for analysis.

Data Cleaning

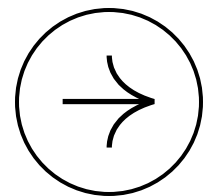
Outliers and inconsistencies were identified and addressed.

Feature Selection

Relevant features were chosen for model training.



Methodology: Model Training Overview



Model Selection

Chose Linear Regression for its simplicity and efficiency.

Training Process

Utilized 80% of data for training the model.

Model Validation

Tested the model on remaining 20% for accuracy.

Methodology: Performance Evaluation

Evaluation Metrics

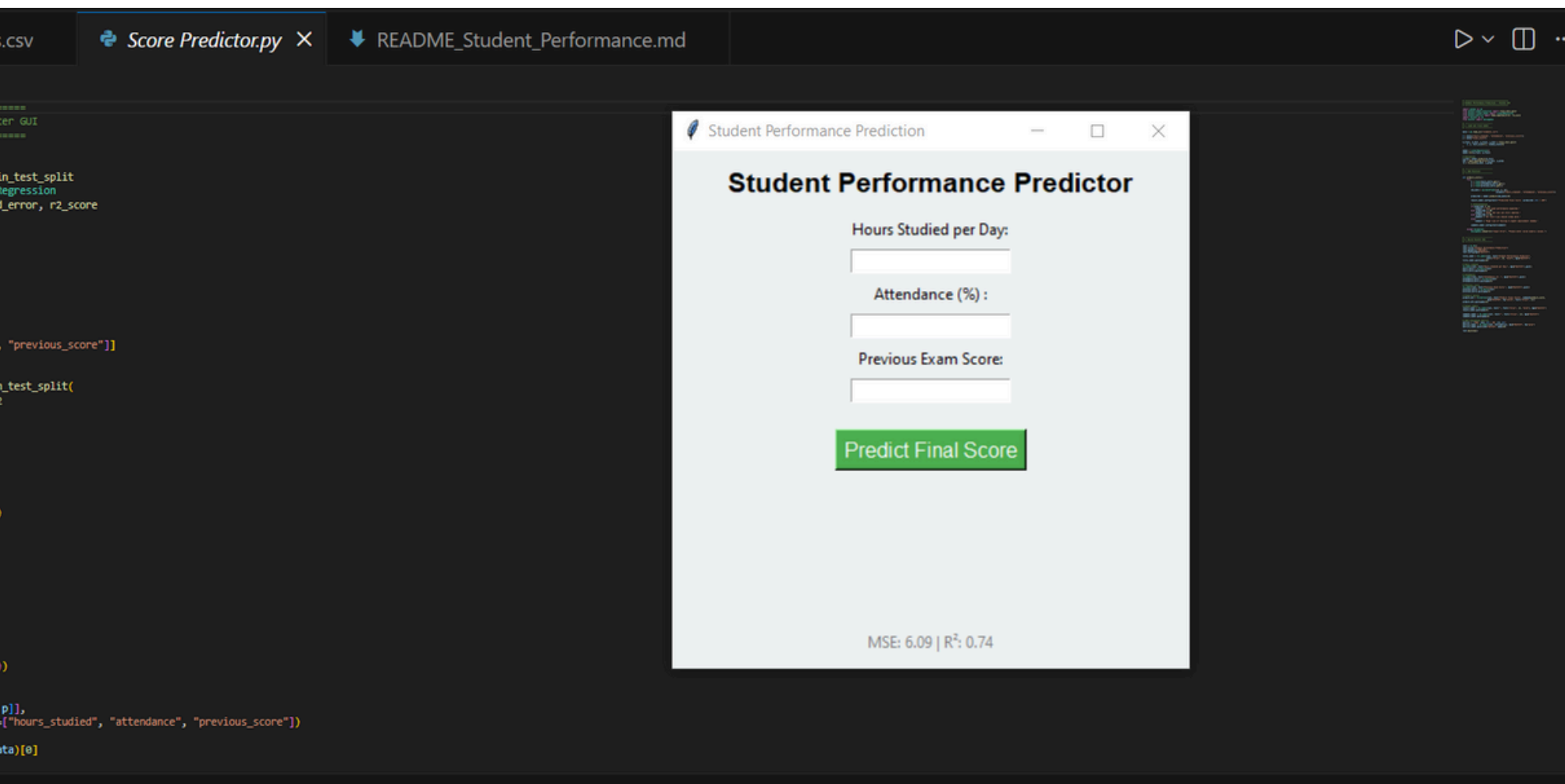
Metrics assess model accuracy and predictive capabilities.

Model Testing

Testing confirms the model's effectiveness on new data.

Continuous Improvement

Ongoing evaluation leads to model refinement and enhancement.



Results and Prediction Functionality

Score Predictor.py × README_Student_Performance.md

Student Performance Predictor

Hours Studied per Day:

Attendance (%) :

Previous Exam Score:

Predict Final Score

Predicted Final Score: 73.76 / 100

Good, but you can still improve.

MSE: 6.09 | R²: 0.74

Model Accuracy

The model achieved a **reasonable prediction accuracy** on test data.

Prediction Functionality

Users can input **study hours** and other metrics.

User Feedback

Responses indicate **high satisfaction** with prediction results.

Example Prediction Demo

User Inputs

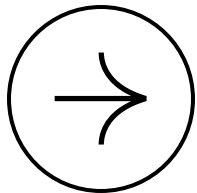
Users provide their **study hours, attendance,** and previous scores.

Prediction Output

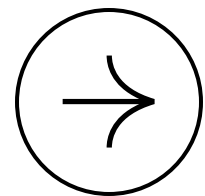
The model estimates the **final exam score** based on inputs.

Interactive Feedback

Users receive tailored performance **improvement suggestions** after predictions.



Conclusion: Machine Learning in Education



Value

Machine learning enhances **student self-assessment** capabilities.

Impact

Predictive analytics can significantly improve **academic performance**.

Future

Advancements in education technology will drive **innovative learning solutions**.

Future Enhancements

Larger Datasets

Incorporating diverse data will improve model accuracy.

Advanced Algorithms

Experimenting with complex models can yield better predictions.

User Interface

Developing a GUI will enhance user interaction and usability.

